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PATHOLOGY REPORT #2

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FUTURE DEVELOPMENT OF THE ARMY INSTITUTE OF PATHOLOGY

Submitted to

The Surgeon General of the United States Army

by

The Committee on Pathology
Division of Medical Sciences, National Research Council

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Contents

M. Army Medical Illustration Service

N. Army Medical Museum

O. Relation of Army Institute of Pathology
to Army Medical Library

A. INTRODUCTION

1. In accordance with the request of the Surgeon General contained in a letter addressed to Dr. Lewis H. Weed from Col. Robert J. Carpenter under date of 6 September 1945, the Committee on Pathology of the Division of Medical Sciences of the National Research Council herewith submits recommendations "for the most advantageous use of the facilities of the Army Institute of Pathology, both for the Army Medical Department and for the medical profession as a whole". In assessing the educational and scientific facilities of the Institute, the Committee has taken cognizance of the increasing importance and responsibility of science and scientific research in the postwar era.

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B. HISTORY

2. What is now known as the Army Institute of Pathology was established during the Civil War as the Army Medical Museum, to collect anatomic specimens and other objective material to be used for the training of military officers. During the intervening eighty years the original objective has remained, but the methods for attaining it have been extended and expanded. The more important landmarks in the development of the Institute are:

a - Establishment of a laboratory of photography shortly after the Civil War by the then curator, Col. Woodward.

b - Issuance of a directive by the Surgeon General shortly after World War I requiring that material from all autopsies on Army personnel shall be forwarded to the Institute for final review and filing.

c - Acceptance by the Surgeon General in 1922 of the Institute as a repository for the American Registry of Pathology.

d - Issuance of a directive by the Surgeon General in 1929 requiring that material from all significant surgical specimens on Army personnel shall be forwarded to the Institute for final review and filing.

e - Establishment in 1942 of the Museum and Medical Arts Service and designation of the Institute as the repository for illustrative material relating to medicine.

f - Recognition by the Surgeon General in 1943 that the essential function of the Institute had changed,

and authorization to change the name from Army Medical Museum to Army Institute of Pathology.

C. GENERAL FUNCTIONS AND DUTIES

3. As the original Army Medical Museum has been charged by the Surgeon General with additional duties, the scope of activities has expanded and broadened. Each new function has brought changed viewpoints and has required a staff with specialized knowledge. Today, the Army Institute of Pathology is truly the central laboratory of pathology and medical illustration for the entire United States Army. The extraordinary amount and variety of material at the disposal of the Institute is unmatched elsewhere in the world. This material offers unlimited opportunities for the study of structural tissue changes and correlation with clinical observations. With proper development of facilities and personnel, the Army Institute of Pathology can become a guiding force in the furtherance of pathology in this country and in the world.

The first and most important recommendation of the Committee is:

I. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS CHANGE THE NAME OF THE ARMY MEDICAL MUSEUM TO ARMY INSTITUTE OF PATHOLOGY, AND RESTATE AND STRENGTHEN THE POLICY DESIGNATING THE ARMY INSTITUTE OF PATHOLOGY AS THE CENTRAL LABORATORY OF PATHOLOGY FOR THE UNITED STATES ARMY.

4. One of the more important aspects of the study of disease is "follow-up". During the past five years surgical specimens from an Army

group of over twelve million persons have been examined in the laboratories of Army hospitals. All significant specimens have been forwarded to and are on file in the Army Institute of Pathology. Many of these men and women will in the future become patients in the Facilities of the Veterans Administration. Great advantage would accrue both to the individual and to our knowledge of disease if all surgical specimens from this group throughout their lives could be collected and studied in one institution. Similarly records and material from all autopsies should be sent to this central institution. Facts about any one disease and the interrelations of disease, not obtainable by other means, would become available.

The Committee therefore recommends:

II. THAT THE SURGEON GENERAL OF THE UNITED STATES ARMY ENTER INTO NEGOTIATIONS WITH THE VETERANS ADMINISTRATION LOOKING TOWARD DESIGNATION OF THE ARMY INSTITUTE OF PATHOLOGY AS THE CENTRAL LABORATORY OF PATHOLOGY FOR THE VETERANS ADMINISTRATION.

D. SPECIFIC FUNCTIONS AND ORGANIZATION

5. The Army Institute of Pathology is an activity of the Office of the Surgeon General. In accordance with Army regulations and directives now in effect, the Institute has six principal functions:

a - To furnish a consultation service for the diagnosis of pathologic tissues for the entire Army.

b - To conduct investigation and research on diseases of medicomilitary importance.

c - To supply instruction in pathologic anatomy to officers of the Medical Department.

d - To supervise the work of and to serve as headquarters

for the units of the Medical Museum and Arts Service and the clinical photographic services in general hospitals of the Army.

e - To serve as the headquarters of the American Registry of Pathology.

f - To maintain a museum for the instruction of medical officers and the education of the public.

To discharge these functions, the Institute is divided into four major units:

Laboratory of Pathology
Army Medical Illustration Service
American Registry of Pathology
Army Medical Museum

6. The Committee is convinced that each of the six principal functions is a valuable contribution to the Army and to the advance of scientific medicine, and hence should be maintained. The Committee is further convinced that some of these functions, notably the American Registry of Pathology, investigation and research, and the museum for the education of the public, should be improved and extended (see details in other sections of this report).

The Committee therefore recommends:

III THAT THE ARMY INSTITUTE OF PATHOLOGY BE CONTINUED AS AN ACTIVITY OF THE OFFICE OF THE SURGEON GENERAL.

IV. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS RESTATE THE POLICY CHARGING THE ARMY INSTITUTE OF PATHOLOGY WITH RESPONSIBILITY FOR: A CONSULTATION SERVICE FOR THE DIAGNOSIS OF PATHOLOGIC TISSUE FOR THE ENTIRE ARMY; COLLECTION OF MEDICAL ILLUSTRATIVE MATERIAL AND SUPERVISION OF MEDICAL ARTS AND CLINICAL PHOTOGRAPHY IN THE ARMY; SERVICE AS HEADQUARTERS FOR THE AMERICAN REGISTRY OF PATHOLOGY; CONDUCT OF INVESTIGATION AND RESEARCH ON DISEASES OF MEDICOMILITARY IMPORTANCE; INSTRUCTION IN PATHOLOGIC ANATOMY TO OFFICERS OF THE MEDICAL DEPARTMENT; AND MAINTENANCE OF MUSEUMS FOR THE INSTRUCTION OF MEDICAL, DENTAL, AND VETERINARY OFFICERS AND THE EDUCATION OF THE PUBLIC.

V. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS ESTABLISH DEPARTMENTS WITHIN THE ARMY INSTITUTE OF PATHOLOGY: DEPARTMENT OF PATHOLOGY, ARMY MEDICAL ILLUSTRATION SERVICE, AMERICAN REGISTRY OF PATHOLOGY, ARMY MEDICAL MUSEUM; AND SUCH OTHER DEPARTMENTS AS MAY PROVE TO BE DESIRABLE.

E. NEW BUILDING

7. The present building on the corner of 7th and Independence, S. W., was built in 1887, fifty-eight years ago, and is no longer adequate. It is unnecessary to point out in detail the inadequacies of this building. It is antiquated, overcrowded, obviously cannot be modernized, and there is no provision for experimental research.

The Committee recommends:

VI. THAT THE SURGEON GENERAL PROCEED AT ONCE TO SECURE AUTHORIZATION AND FUNDS FOR THE CONSTRUCTION OF A BUILDING ADEQUATE

IN SIZE AND ARRANGEMENT FOR THE EXPANDING ACTIVITIES OF A MODERN ARMY INSTITUTE OF PATHOLOGY.

8. The Committee does not believe that it should be concerned with the exact location, but does wish to call attention to the desirability of a location in the northwest section of Washington and adjacent Maryland where the Institute would be in proximity to the Army Medical School, Walter Reed Hospital, Naval Medical Center, and National Institute of Health.

F. ADMINISTRATIVE DIRECTION

9. Since the establishment of the Army Medical Museum, an officer of the United States Army has, from time to time, been designated as Curator of the Army Medical Museum, or as now named, Director of the Army Institute of Pathology. The Committee is of the opinion that this policy of administrative control of the Institute by the Surgeon General should be continued. However, continuity of service and of scientific direction is essential to the successful functioning of the Institute. In other words, the Institute will need a permanent staff not subject to dislocation for other duties, especially in those positions whose holders are charged with the establishment of scientific policy, research, and instruction of the younger members of the staff. If the Army regulations concerning tour of duty of officers in Washington can be changed as they apply to these positions, some or all of the permanent staff may well be commissioned.

10. Before World War I, the curators of the Museum, although distinguished in their own field of medicine, were not necessarily interested in or experienced in pathologic anatomy. In accordance with the changed viewpoint of the function of the Museum after 1920, curators have been appointed because of their ability as pathologists.

On the basis of these facts and observations the Committee therefore recommends:

VII. THAT THE SURGEON GENERAL CONTINUE THE POLICY OF ASSIGNMENT OF AN OFFICER FROM THE REGULAR ARMY WHO IS EXPERIENCED IN PATHOLOGY AS THE DIRECTOR OF THE ARMY INSTITUTE OF PATHOLOGY.

VIII. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS ESTABLISH FOUR POSITIONS IN THE ARMY INSTITUTE OF PATHOLOGY, DESIGNATED RESPECTIVELY: SCIENTIFIC DIRECTOR OF THE DEPARTMENT OF PATHOLOGY; SCIENTIFIC DIRECTOR OF THE AMERICAN REGISTRY OF PATHOLOGY; CHIEF OF THE ARMY MEDICAL ILLUSTRATION SERVICE; AND CURATOR OF THE ARMY MEDICAL MUSEUM.

IX. THAT THESE FOUR LATTER POSITIONS BE FILLED ON A PERMANENT BASIS BY PERSONS OF EXPERIENCE AND ABILITY, EITHER FROM CIVILIAN LIFE OR FROM THE COMMISSIONED RANKS OF THE ARMY DEPENDING ON AVAILABILITY.

11. It is obvious that in an Army Institute of Pathology with a director and four department heads, some of whom may be civilians, there must be clear lines of administrative authority. Since the Institute is an integral part of the United States Army, it follows that final authority in all matters and authorization to correlate the various activities must be in the hands of The Director.

The Committee therefore recommends:

X. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS DEFINE THE AUTHORITY OF THE DIRECTOR AND CHARGE HIM WITH SUPERVISION AND CORRELATION OF ALL ACTIVITIES OF THE INSTITUTE.

12. In many of the activities of the Institute, a close and cordial liaison with civilian physicians, dentists, and veterinarians is of the utmost importance. Inasmuch as the liaison is more concernod with the separate activities than with the overall functioning of the Institute, specific recommendations concerning liaison are given in the following sections devoted to each department.

13. In research institutes it has been found desirable to have a group of persons to act in an advisory capacity to the director. Such a group has no administrative authority. The Committee foresees that the Army Institute of Pathology will become a large research center and therefore recommends:

XI. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS ESTABLISH A SCIENTIFIC ADVISORY BOARD OF THE ARMY INSTITUTE OF PATHOLOGY, AND THAT THE MEMBERS BE SELECTED, ON RECOMMENDATION OF THE DIRECTOR, FROM THOSE APPOINTED AS RESIDENT CONSULTANTS AND OTHERS WHO MAY BE QUALIFIED, INCLUDING PERSONNEL FROM THE OTHER SERVICES.

G. DIAGNOSTIC AND RESEARCH ACTIVITIES

14. Army Regulation 40-410 dated 3 August 1942 provides in substance:

> That officers of the medical department shall forward to the Army Medical Museum for preservation, exhibit, and study, specimens illustrating a variety of pathologic conditions and other aspects of medicine, dentistry,

and veterinary medicine.

15. Before World War II the diagnosis, filing, and coding of the specimens received under this regulation were easily handled by the two to four officers and the few clerks allocated to the Institute. Shortly after the beginning of expansion of the Army in 1940, the volume of material referred to the Institute started to increase, and has progressively grown to the present. The figures for the first six months of 1945 will serve to illustrate the immense amount of work involved in this continuing activity.

Number of Accessions	Jan.	Feb.	March	April	May	June	Total
Autopsies	908	1068	1013	1390	1658	1472	7509
Surgical specimens	1222	1080	1652	1762	1918	1979	9613
Total	2130	2148	2665	3152	3576	3451	17122

The surgical specimens represent selected material only, since routine diagnoses on specimens of no administrative or professional interest are made and filed in local Army hospitals. Although slides accompanied most specimens, it was necessary to prepare 41,676 slides at the Institute on this material during the same period of time. In addition 29,548 slides were made for special studies during the six months.

16. The end of the war has not brought a cessation of the inflow of material. Stored material is still arriving in large volume. Although battle casualties and traumatic injuries will no longer contribute a large proportion, material from the armies of occupation and from the home forces will continue for an indefinite period in peace-time.

17. The material that has been pouring into the Institute from all parts of the world and will be received during the next few decades is not only vast in amount, but is representative of almost every type of injury, disease, and malformation. The valuable information latent in such a collection can not be overstressed. There are advantages to at least two aspects of medicine from the collection and study of this material: a) for the immediate conduct of military operations and maintenance of the health of the Army; and b) advance in the knowledge of the incidence, cause, and nature of disease. It follows that the advantages in the second category(b) will sooner or later react to the benefit of the first category(a). A few examples of each will serve to illustrate the principles involved.

18. In the case of tumors, or other operative material requiring prompt diagnosis, the opinion of the pathologist at the Institute is returned by air mail or radiogram. Speed in the return of a diagnosis has saved lives or forestalled unnecessary operations.

19. The importance of accurate diagnosis in the early detection of epidemics, and of unusual types of injury associated with special environmental conditions in warfare, is obvious. Such a diagnosis may point the way to appropriate therapeutic or sanitary procedures. Thus, when epidemic hepatitis first made its appearance in soldiers who had been vaccinated against yellow fever, it was urgently important to differentiate the two diseases. The pathologic changes found in the liver of the epidemic hepatitis cases were sufficiently distinctive to make it certain that this disease was not caused by the yellow fever virus - a conclusion later substantiated by epidemiologic and laboratory studies.

20. Certain malignant tumors, hitherto supposed to occur mainly in later life, have been found to develop in men of the military age group.

Thus among the troops in certain regions of the world, there were discovered several hundred cases of carcinoma of the lip. Carcinoma of the lung, developing during the period of service, as shown by previous negative radiographs of the chest, has been found with surprising frequency.

21. The renal lesions characterizing the so-called lower nephron syndrome have been so often observed that they have come to be regarded as the most common and clinically important form of kidney damage amongst the armed forces.

22. From the administrative point of view, it is essential to distinguish injuries or diseases incurred in line of duty from those otherwise acquired. The pathologist must often supply a factual basis for judgment by the appropriate Disposition Board, and this is and should continue to be one of the important functions of the Institute.

23. Several comprehensive studies on the material, which had served the immediate military purposes outlined in the preceding paragraphs, have been completed and others are in progress. Studies already completed deal with: the comparative pathology of scrub typhus and other rickettsial diseases, trench foot, fat embolism, epidemic hepatitis, gynecomastia, lesions of the brain following extraction of teeth, coronary artery disease, heat stroke, teratomas of the mediastinum, and ondontogenic tumors. Although much has been done, more remains. Continued collection and study of the material at the Institute are of the utmost importance and the Committee therefore recommends:

XII. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS REAFFIRM AND IF NECESSARY STRENGTHEN THE ARMY REGULATIONS REQUIRING THAT THE PERTINENT TISSUES FROM ALL AUTOPSIES AND FROM ALL THE MORE IMPORTANT SURGICAL OPERATIONS BE SENT TO THE INSTITUTE

FOR DIAGNOSIS, FOR CONSULTATION, OR FOR REVIEW AND FINAL OPINION.

XIII. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS REAFFIRM AND IF NECESSARY STRENGTHEN THE ARMY REGULATIONS REQUIRING THE ARMY INSTITUTE OF PATHOLOGY TO CONDUCT SCIENTIFIC INVESTIGATION.

24. Research can be conducted efficiently, only when the data on the material under investigation are quickly available. The number of accessions at the Army Institute of Pathology is so large that some mechanical means of coding and sorting must be installed and utilized if valuable time is not to be lost. The Committee recommends:

XIV. THAT A MODERN PUNCH-CARD SYSTEM OF CODING AND FILING BE INSTALLED AT THE ARMY INSTITUTE OF PATHOLOGY AND THAT ADEQUATE FACILITIES AND PERSONNEL FOR THESE PURPOSES BE PROVIDED.

H. TEACHING ACTIVITIES

25. The activities of the Army Institute of Pathology as a teaching center for the training of Army pathologists, have increased notably during the war. Approximately 150 officers have been assigned to the Institute for temporary duty, and many others have received valuable extramural instruction through the issuance of study sets consisting of prepared microscopic slides illustrating the pathology of various special fields.

26. The study sets of slides and accompanying brochures photographically illustrated were first developed as an activity of the American Registry of Pathology. The original set on ophthalmic pathology was sponsored by the American Academy of Ophthalmology and issued in 1928. Since then many other

sets have been prepared for civilian and military purposes, and it is difficult to distinguish between the teaching activities of the Registry and those of the Army.

27. Over 1,500 of these sets have been sent out during the past year to medical, dental, and veterinary officers and to the civilian professions. In ordinary circumstances most of the loans have been to individual civilian physicians. During the war the proportion of loans to officers of the services has been large, but this may not continue to be true in peace-time. They have also been made available on a loan basis to civilian medical, dental, and veterinary schools, many of which are not in a position to obtain adequate illustrative material for the study of specialized subjects.

28. With the increased interest in tropical diseases, the requests for illustrative teaching material in the medical schools have become urgent. During the past two years, the Institute has given to 79 medical schools, the following material pertaining to tropical diseases: 1,918 blocks of tissue, 2,432 lantern slides, and 340 microscopic slides. Lantern slides, illustrating especially diseases of the skin and tropical diseases, have been loaned to Army stations and to medical schools in the United States and Canada. This is indeed a valuable contribution to medical education, especially in the training of potential medical officers for the Services.

29. Other important educational functions are: the distribution of case histories and slides for the holding of clinical-pathological conferences, which serve to keep alive the interest and morale of the medical officers in isolated stations; the teaching of an annual course in ophthalmic pathology for the Department of Ophthalmology of the George Washington University Medical School; and, since 1938, the Army Institute of Pathology has during the past eight years prepared two thousand three hundred and fifty sets of twenty-five slides each and accompanying syllabuses for the annual Seminar

of the American Society of Clinical Pathologists. These sets have been furnished to illustrate the pathology of the skin, bone, breast, endocrine glands, reticulo-endothelial system, brain, and tropical diseases.

30. Great as has been the teaching service of the Institute during the war years, greatly expanded educational function can be anticipated. Obviously, the Institute must serve as a training center for Army pathologists, and as a place to which they can return for further study. No single medical, dental or veterinary school has at its disposal the wealth and variety of pathologic material that is accumulating at the Institute. To those intending to follow pathology as a career, to the specialist in or out of the Army who wishes to prepare for Specialty Board examinations or to concentrate on the pathology of his particular field of interest, the Institute should open its doors.

To implement these conclusions the Committee recommends:

XV

THAT THE SURGEON GENERAL REAFFIRM THE POLICY OF MAKING THE FACILITIES AND MATERIAL OF THE ARMY INSTITUTE OF PATHOLOGY AVAILABLE TO REPUTABLE CIVILIAN INSTITUTIONS, OTHER GOVERNMENTAL DEPARTMENTS AND SERVICES, AND QUALIFIED PROFESSIONAL PERSONS FOR TEACHING AND RESEARCH.

31. Most important for the future of the science of pathology is the training of young men for a career in pathology both in the Army and in civilian institutions. It is altogether unlikely that the Regular Army, in the ensuing years, can provide a professional staff of adequate training and competence to man the laboratories which will be required. It will be necessary to establish at once, a training program. The Army Institute of Pathology has unique facilities to do this. The training program should

include officers from the Regular Army, officers in the inactive Reserve, and civilians. For example, certain officers in the Reserve might be placed on active duty and assigned to the Institute rather than to a field training center. This would assure the Army of an adequate number of professional pathologists trained in the methods of the Army for an emergency.

The Committee, therefore, recommends:

XVI. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS ARRANGE FOR THE ASSIGNMENT TO THE ARMY INSTITUTE OF PATHOLOGY OF NOT LESS THAN NINE OFFICERS INCLUDING MEDICAL, DENTAL, AND VETERINARY OFFICERS FROM THE REGULAR ARMY FOR PERIODS OF FOUR YEARS, AND SUBSEQUENT ASSIGNMENT OF THESE OFFICERS TO POSITIONS IN WHICH THEY WILL USE THIS PROFESSIONAL TRAINING.

XVII. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS ARRANGE FOR THE ASSIGNMENT OF RESERVE OFFICERS TO ACTIVE DUTY AT THE ARMY INSTITUTE OF PATHOLOGY FOR RESEARCH, TEACHING, OR TRAINING.

XVIII. THAT THE SURGEON GENERAL AUTHORIZE THE ACCEPTANCE OF FELLOWS FOR GRADUATE TRAINING AT THE ARMY INSTITUTE OF PATHOLOGY.

32. During World War II, a system of Resident Consultants has proven most effective in consolidating the liaison between the Institute and civilian institutions, and in aiding in the diagnostic, instructional, and research activities of the Institute. The Committee therefore recommends:

XIX. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS CONTINUE AS A PERMANENT POLICY THE APPOINTMENT OF RESIDENT CONSULTANTS.

I. EXPERIMENTAL RESEARCH

33. Out of the material already collected at the Army Institute of Pathology will undoubtedly grow many problems for future study and this will continue to be so even for an Army not in combat. Facts of importance will be discovered from morphologic research on this vast material. Yet morphology alone may not give the final solution and in this event exploration in fields of cause and function will be indicated. Indeed, morphology will pose new and difficult questions, the only answer to which will be found in experimental fields. Thus, if the proposed Army Institute of Pathology is to fill its purpose, provisions must be made to meet the requirements of experiment. The Committee therefore recommends:

THAT THE SURGEON GENERAL BY APPROPRIATE MEANS AUTHORIZE THE ARMY INSTITUTE OF PATHOLOGY TO INITIATE, CONDUCT, OR COLLABORATE IN APPROPRIATE EXPERIMENTAL INVESTIGATIONS ON DISEASES WHICH MAY ASSUME MEDICOMILITARY IMPORTANCE.

J. PERSONNEL FOR THE DEPARTMENT OF PATHOLOGY

34. The topics discussed in the three immediately preceding sections entitled - Diagnostic and Research Activities, Teaching Activities, and Experimental Research -- together constitute the functions of the administrative unit designated as the Department of Pathology. After function and duties have been defined, it is logical to proceed to the questions of personnel and physical facilities necessary to make possible effective operation. Personnel for the Laboratory of Pathology will be considered in this section and physical facilities in the next.

35. The laboratory services of the Army including the Army Institute of Pathology during the war have been almost entirely staffed by reserve officers. It is altogether unlikely that the Regular Army, in the ensuing

years, can provide a professional staff of adequate training and competence for the Institute. Furthermore, continuity of service is essential to the successful functioning of the Institute - in other words, it will need a permanent staff not subject to dislocation for other duties. This is particularly important in the case of the higher ranking staff members with specialized training who cannot be replaced by improvised assignees. This means that if the Institute is to continue at its present high level of efficiency, it will be necessary to obtain competent pathologists either from civilian life or from the Medical Department depending on availability. These will at least provide a nucleus for the diagnostic and consultative activities, and for the future training of Regular Army officers. The permanent staff also will be qualified to conduct research on Army problems as they arise. If an exception to the Army Regulations relating to the tour of duty of Army officers in Washington for these officers can be made, the Committee would recommend that they be commissioned.

36. While it is not possible to forecast accurately at this time the volume of work which the program outlined will entail, it will undoubtedly be large. It is estimated that the combined Army and Veterans material will amount to from 7,000 to 10,000 autopsies yearly, and at least an equal number of surgical specimens which have diagnostic or administrative significance.

37. While unpredictable circumstances may require sudden expansion, twelve competent pathologists, in addition to the officers of the Medical Department, and civilian pathologists assigned to the Institute for instruction and special projects, will provide professional staff adequate for the anticipated duties. The present staff consists of competent men who are carrying on their duties under patently adverse conditions. They

are overworked, overburdened by routine, physically crowded, with little time for research, study or diversion. The Committee is stirred to admiration by the high standards of work achieved and the importance of results attained under such difficult conditions by the directing officers and the individual pathologists. The twelve pathologists forming the permanent staff should include:

a - A Scientific Director of the Department of Pathology having the qualifications and standing of a university professor.

b - Six pathologists who have special training and ability to cover the fields of neuropathology, dermatologic pathology, oral and dental pathology, ophthalmologic pathology, veterinary pathology, and tumors.

c - Five general pathologists.

The Committee recommends:

XXI. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS ESTABLISH A TABLE OF ORGANIZATION FOR THE LABORATORY OF PATHOLOGY IN THE ARMY INSTITUTE OF PATHOLOGY PROVIDING FOR A PERMANENT STAFF OF TWELVE COMPETENT CIVILIAN PATHOLOGISTS OR MEDICAL OFFICERS, EXCLUSIVE OF ADMINISTRATIVE OFFICERS AND OFFICERS OR FELLOWS ASSIGNED FOR TRAINING OR FOR SPECIAL PROJECTS.

38. Estimation of the exact number and qualifications of the service staff which will be needed for the Department of Pathology is even more difficult than for the professional staff. The committee wishes to emphasize that efficient work can be done by the pathologists only if there is an adequate number of technicians, secretaries, clerks, and skilled

assistants. Categories to be incorporated in a table of organization should include: technicians, animal caretakers, secretaries, stenographers, clerks, medical record librarians, statisticians, editors, librarians, and curators of museums. Allocations to each category, determination of the total number, and adjustments for increasing and decreasing demands may well be left to the judgment of the incumbent Director. However, a survey by the committee indicates that an absolute minimum of eighty to ninety will be required.

K. PHYSICAL FACILITIES FOR DEPARTMENT OF PATHOLOGY

39. The unpredictability of the directions which the diagnostic, teaching, and research activities of the Institute may take is such that adequate space and equipment must be provided for a wide variety of studies. In addition to flexibility in actual construction there should be a similar flexibility in the allotments, and the Institute should be self contained. Dependence on facilities elsewhere would, because of inconvenience and loss of time and energy, defeat the purposes of a new Institute. The Committee proposes therefore that the new Institute be planned as a self-contained unit for diagnostic and research work in pathology. Definite prescription of square footage must in a measure depend somewhat on design and size of the proposed building. The following units should be incorporated in the building plans.

40. Diagnostic Activities and Morphological Research. In addition to the ample space for the routine examination and diagnosis of organs and tissues, and offices for the staff, there should be adequate space for special equipment to be used. This includes such items as measuring devices, planimeter, certain lenses, camera lucida and the like. Furthermore, in addition to the routine files of diagnosis, provision should be made for

statistical equipment, mechanical analyzers, IBM equipment, etc. The electron microscope would best be included in a space for physical equipment indicated below.

41. Bacteriology and Study of Viruses. Space must be provided for conventional bacteriology in connection with experiments. The fact that the Army Medical School has excellent laboratories for research in connection with viruses and rickettsiae, should not preclude a modest space for similar work in the Institute as ancillary to current experiments. There should be space for dust-proof cubicles, preparation of media, sterilization of glassware and other equipment, refrigerator for supplies and incubator rooms.

42. Biochemistry. This is commonly used in experimental fields. A laboratory should be large enough to house conventional equipment and such additional items as polariscopes, spectrophotometers, spectrograph and the equipment for crystallography.

43. Physiology. Experimental work cannot be carried on without adequate space and equipment in this field. It involves not only dynamic physiology with its recording devices, but also kitchen space and facilities for studies of nutrition. Provision should also be made for the study of effects of temperature, moisture, light and other environmental factors.

44. Physics. The use of the electron microscope, the ultra-centrifuge, the Tiselius apparatus and probably also refrigerated centrifuges, requires space which is automatically controlled in respect to temperature and humidity, is dust-proof, and is free from vibration. Power lines vary from low (battery) to high voltage direct current and from low frequency to high frequency alternating current, with differences in voltage.

45. Surgical Technique. Operations on animals, for survival experiments, require the same meticulous care as to asepsis as do those on man.

Thus it is essential to have a suite for sterilization of instruments and other supplies, a properly lighted operating room, space for washing of hands and a unit for immediate postoperative care. An animal autopsy room should be so placed as to prevent contamination of the operating suite.

46. Animal Quarters. Whether space for experimental animals should be in a separate building or in the main building has been widely discussed. This Committee holds the opinion that convenience is served by having them in the main building and that thereby the care of the animals can be more closely supervised. Appropriate sound-proofing and ample ventilation to prevent noise and odor in the rest of the building can be provided. The space for the surgical suite should be adjacent. The survival of animals depends on proper space, light, temperature, and humidity for different species. "Unpredictability" requires that quarters be provided for any animals which may be required. Provision should be made for dogs, cats, rats, mice, cotton rats, hamsters, rabbits,guinea pigs, apes, monkeys, reptiles, amphibia, and fish. Space may well be allocated also for insects and plant-life.

47. General equipment for the various offices and laboratories should include compressed air, vacuum, battery current, D. C. and A. C. lines, and gas. Animal quarters should be fully air-conditioned. Provision for a kitchen for animal foods whether ordinary or as a part of nutrition experiments has been noted under Physiology. In so far as possible, the animal quarters should be insect-proof. A vermin-proof room for storage of animal food is necessary.

48. Hospital Beds. Experiments may at some time be conducted on human volunteers. Pending the opening of a neighboring teaching hospital, provision should be made for 10 beds, with the necessary arrangements as to nursing, kitchens, toilets, etc. Experiments on man may prove to be related

to physiology, biochemistry, nutrition and other fields. When the teaching hospital is built, these rooms would become available as reserve space for the Institute.

49. Living Quarters. Pursuit of experimental investigations often requires staying with the experiment over night or several nights. A bedroom for 2 investigators, or preferably 2 single bedrooms, should be provided with toilet facilities and kitchenette. Having a cot in some unsuitable place is no substitute for this arrangement.

A building of this sort with its valuable equipment, and its animals, cannot safely be left vacant at night. Thus there should be a suite for at least 2 orderlies with bedrooms, sitting room, bath and kitchenette.

50. Conference Room. An essential part of the diagnostic, teaching, and research program of the Institute is the conference or seminar. For the staff and activities outlined in the preceding sections of this report, one conference room for 100 persons, one for 50 persons, and three for 25 persons should be provided.

51. Departmental Library. Regardless of whether or not the new building of the Army Medical Library is located in physical proximity to the Army Institute of Pathology, a working library of books and journals directly related to the field of pathology should be provided in the Institute.

52. X-ray Rooms. Complete examination of many pathologic specimens and some experimental investigations require use of an x-ray apparatus. A small but adequate x-ray apparatus and the necessary dark rooms should be available.

53. Museum. A small functional museum is needed for the teaching program. The specimens should be as accessible for close study as are the books in a library. This means that: 1) the specimens are on open shelves;

2) a history and description accompany each specimen; 3) suitable study tables are available in the museums, and 4) where possible or desirable, photographs, radiographs, and other illustrative and descriptive materials are available.

54. Miscellaneous. In addition to the special rooms and equipment outlined in preceding paragraphs, space and the usual office or laboratory equipment for the administrative operation of the institute, as shown in the following table must be provided.

55. As a basis for preliminary planning of the new building for the Institute, the committee submits the following estimates of floor space required for the LABORATORY OF PATHOLOGY. Although patently estimates, each figure is based on experience in the present building of the Institute or on experience in comparable civilian institutions.

Animal quarters and special research laboratories	15,000 sq. ft.	37.5 20x20
Hospital beds - ok	2,000 sq. ft.	5 - 20x20
20 offices for the permanent pathologists and officers assigned for four years - OK	6,000 sq. ft.	15 - 20x20
20 offices for temporary duty officers, visitors, and fellows	8,000 sq. ft.	15 - 20x20
2 conference rooms, one for 50 and one for 100 people - ?Low	3,000 sq. ft.	1 - 2.5 20x20; 2 - 5 20x20
3 conference rooms for 25 people - too low	1,500 sq. ft.	3 rm 1.25 - 20x20
Departmental library - ok	2,000 sq. ft.	5 - 20x20
Gross preparation room - ok	1,200 sq. ft.	3 - 20x20
4 histopathologic preparation rooms - too low	3,000 sq. ft.	7.5 - 20x20
X-ray and dark room (leadlined walls) - too low	300 sq. ft.	
Fireproof vaults - too low	300 sq. ft.	
Supply room - slightly too low ↑ 2000	1,000 sq. ft.	2.5 - 20x20
Storage rooms - adequate if high storage tiers, (?Low)	20,000 sq. ft.	—
Files of slides - slightly too low	3,000 sq. ft.	

Only 1 to 2 cases at a time

specimen

2

125 200

125 / 20000

Receiving and mail room	too low	600 sq. ft.	1.5 20x20
Accession room	too low	1,200 sq. ft.	3 - 20x20
Room for stenographers and typists	ok	1,200 sq. ft.	3 - 20x20
Record rooms	?+	6,000 sq. ft.	15 - 20x20
Coding rooms	?+ 1500	3,000 sq. ft.	7.5 - 20x20
Mess rooms		1,800 sq. ft.	4.5 - 20x20
Machine and carpenter shops	ok 2000	800 sq. ft.	2 - 20x20
Rest rooms and accompanying lavatories	?	400 sq. ft.	1 - 20x20
Autopsy rooms	too low	400 sq. ft.	1 - 20x20
Recreation rooms	too low	1,200 sq. ft.	3 - 20x20
Teaching museum	ok	7,500 sq. ft.	18.75 - 20x20
TOTAL FOR LABORATORY OF PATHOLOGY		88,400 sq. ft.	

L. AMERICAN REGISTRY OF PATHOLOGY

56. The American Registry of Pathology serves in a most significant way in several categories: military, professional societies, universities, and individuals. More specifically it may be pointed out that the existence of the registries provides advisory committees which can be called upon for assistance in the diagnosis of difficult cases. This is of great value not only to the medical services of the Army, but also to civilian contributors. However, it should be emphasized that the registries do not exist primarily for rendering diagnostic services. Where a diagnosis is desired in the case of material received from civilian sources, the material must be submitted by the local pathologist. Of great value in the advancement of pathology is the fact that there is collected in one institution clinical data and pathological material on different phases of many important diseases. This provides a unique opportunity for study and demonstration. To cite examples, there are at the present time twenty-five hundred

3.75

20 | 75

20 | 150
140
100

melanomas of the choroid and over five thousand tumors of the bladder in the collections. The volume of the material available in many of the registries is sufficient for precise, definitive studies of important disease entities.

57. The educational value of the registry collections cannot be overestimated. Qualified individuals are always welcome at the Registry where they may obtain carefully selected material for refresher courses. There have been developed study sets with accompanying atlases and syllabuses on many major subjects. These together with the study sets of slides have been used widely by those who prepare for specialty board examinations, by civilian pathologists, and by officers of the Medical Department. Study sets now available include:

100 Slide sets - - - - - - - - - - -	Hematology
	General Surgical Pathology
	Ophthalmology
	Otolaryngology
	Orthopedics
	Neurology
	Dermatology
	Gynecology
	Urology
	Dental and Oral Surgery
50 Slide sets - - - - - - - - - - -	Diseases of the Kidney
25 Slide sets - - - - - - - - - - -	Lymph nodes
	Thyroid gland
	Epidemic hepatitis
	Interstitial pneumonitis
	Fungus diseases
	The Encephalitides
	Neoplasms of Breast, Skin, Bones and Brain

58. From a military point of view, the Army Medical Department, through the facilities provided by the various Registries, is able to keep abreast with progress in the various specialties. In addition, the Army Medical Department has available the services of groups of competent civilian consultant pathologists. In other words, the Registries provide a desirable liaison between military and civilian professions. During the war years the facilities of the Registries have been utilized in the training of approximately one hundred officers from the Medical Department of the U. S. Army on temporary duty so that they might better discharge their responsibilities in both general and special fields of pathology.

59. Another activity of the Registries is the preparation annually of technical exhibits for various medical societies, of which the following

may be mentioned: The Association of Military Surgeons, the New York Academy of Medicine, the American Urological Association, The American Dental Association (including many state dental societies), The American Medical Association, The American Academy of Ophthalmology and Otolaryngology, and the Southern Medical Association. This function of the Registry is obviously of considerable importance, since by the medium of exhibits civilian physicians who attend medical meetings can become informed of the most recent advances in pathology.

The Committee recommends:

XXII. THAT THE SURGEON GENERAL REAFFIRM AND IF NECESSARY STRENGTHEN THE POLICY THAT THE AMERICAN REGISTRY OF PATHOLOGY SHALL BE HOUSED IN AND SHALL BE AN INTEGRAL PART OF THE ARMY INSTITUTE OF PATHOLOGY.

60. Present registries authorized include the Registry of

Ophthalmologic Pathology
Otolaryngologic Pathology
Orthopedic Pathology
Dental and Oral Pathology
Neurologic Pathology
Dermal Pathology
Gerontology
Veterinary Pathology
Tumors of Endocrine glands
Diseases of the Lymphatic System
Tumors of the Kidney
Tumors of the Urinary Bladder
Tumors of the Prostate Gland
Tumors of the Lung

61. The possibilities of adding new registries should be considered and the following have been suggested: Registry of Growth - to be sponsored by Committee on Growth of the National Research Council; Registry of Tuberculosis - to be sponsored by the American Trudeau Society (of the National Tuberculosis Association); Registry of Roentgenology - to be

sponsored by American Society of Roentgenology; Registry of Pathology of Industrial Medicine; Registry of Proctologic Pathology; and Registry of Nutritional Pathology. It has also been thought advisable to explore the possibility of eventually adding to the Registry of Orthopedic Pathology, the Codman Bone Tumor Registry, which is at present under the auspices of the American College of Surgeons.

62. The facilities of the Registries should be utilized in the teaching and research program of the Army Institute of Pathology.

The Committee recommends:

XXIII. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS ENCOURAGE UTILIZATION OF THE FACILITIES OF THE AMERICAN REGISTRY OF PATHOLOGY BY OFFICERS OF THE MEDICAL DEPARTMENT AND OTHER GOVERNMENT SERVICES AND CIVILIANS FOR GRADUATE STUDY IN SPECIAL FIELDS OF PATHOLOGY.

63. It is recognized that the strength of the registries lies in the fact that a group of civilian organizations of national scope has assembled a most valuable collection of pathologic material which is used by military and civilian professions alike; consequently, it is the opinion of the Committee that the administration of the American Registry of Pathology should be entrusted to a Civilian Director. Under the present administrative set-up, it is evident that the future of the registries is rather precarious and the possible danger of deterioration must be recognized. The committee is convinced that this danger can be precluded only by the appointment of a Civilian Director who would be primarily responsible to the Committee on the American Registry of Pathology of the National Research Council. The Scientific Director of the American Registry of Pathology would relieve the Director of the Institute of a great deal of administrative detail

and by concentration on one department exploit its potentialities to a much greater extent than is now possible. For many years a Committee on the American Registry of Pathology of the National Research Council has sponsored the participation of civilians in the registries.

The Committee recommends:

XXIV THAT A PATHOLOGIST OF ESTABLISHED REPUTATION BE APPOINTED SCIENTIFIC DIRECTOR OF THE AMERICAN REGISTRY OF PATHOLOGY BY THE SURGEON GENERAL ON RECOMMENDATION OF THE COMMITTEE ON THE AMERICAN REGISTRY OF PATHOLOGY OF THE NATIONAL RESEARCH COUNCIL.

64. A suitable person can not be employed as Director unless there is some definite agreement on security of position, so, the Committee recommends:

XXV. THAT THE TENURE OF OFFICE AND PROVISION FOR A PENSION OF THE SCIENTIFIC DIRECTOR OF THE AMERICAN REGISTRY OF PATHOLOGY BE AGREED UPON BY THE SURGEON GENERAL AND THE COMMITTEE ON THE AMERICAN REGISTRY OF PATHOLOGY OF THE NATIONAL RESEARCH COUNCIL.

65. The Director must be provided with an adequate staff of clerks, secretaries and technicians to insure for the Registries future growth, usefulness and security. For proper development and use of the material now available, three or four clerks, and four typists and technicians are required.

66. Under the suggested administrative changes it is not unlikely that the annual budget for the conduct of the registries will eventually total twenty five thousand dollars, allocated approximately as follows:

Director (minimum)	$7500
Four clerks	7500
Typists, technicians	6000
Equipment, supplies and current expense	4000

67. At the present time the various registries contribute on a voluntary basis an annual sum of approximately sixty-nine hundred dollars for support of the registries. It should be mentioned that during the war years activities of some of the registries have had to be suspended and that the usual income from some of the participating societies has not been forthcoming. It is obvious to the Committee that if the registries are to be put on a substantial and enduring basis, additional funds should be made available so as to provide for the administrative changes that the Committee feels are imperative.

68. Potential sources of additional funds include grants from governmental agencies, insurance companies, which conceivably would be interested in studies of serious organic diseases which have been revealed by current studies of registry material from young men of military age, philanthropic individuals, additional funds from present registries, and "Friends of the American Registry of Pathology" (this organization is being contemplated).

69. While the total budget mentioned previously ($25,000) will not be needed until additional facilities are provided, it is important that an additional four thousand dollars be obtained annually for present needs.

The Committee recommends:

XXVI. THAT THE SURGEON GENERAL REQUEST THE NATIONAL ACADEMY OF SCIENCES - NATIONAL RESEARCH COUNCIL TO ACT AS FISCAL AGENT FOR THE CUSTODY AND DISPERSAL OF FUNDS FOR THE AMERICAN REGISTRY OF PATHOLOGY.

70. In the contemplated new Army Institute of Pathology, approximately 6000 sq. ft. of floor space should be provided for the registries as follows:

Ophthalmologic Pathology	600 sq. ft.	= 1.5 - 20 x 20
Dental and Oral Pathology	600	= "
Veterinary Pathology	600	= "
Otolaryngologic Pathology	200	= 1 20 x 10
Orthopedic Pathology	400	= 1 20 x 20
Neurologic Pathology	400	= "
Lymphatic System	400	= "
Urology	600	= 1.5 20 x 30
Bone Tumors too low	400	= 1 20 x 20
Miscellaneous registries	600	= 1.5 20 x 30
Administration ok —	600	=
Reserved for future registries too low	600	=

12000 sq ft

71. Although the erection of a new building will be most advantageous to the activities of the registries, the Committee does believe that the administrative changes are most urgently needed and therefore recommends:

XXVII. THAT THE ADMINISTRATIVE CHANGES IN THE AMERICAN REGISTRY OF PATHOLOGY BE EFFECTED AS SOON AS POSSIBLE, AND NOT AWAIT THE ERECTION OF A NEW BUILDING.

M. ARMY MEDICAL ILLUSTRATION SERVICE

72. The Army Medical Illustration Service, as organized at the Army Institute of Pathology, consists of two sections, the Photographic Laboratory and the Medical Museum and Arts Service.

73. One of these, the Photographic Laboratory, was started shortly after the Civil War by Woodward, a pioneer in photomicrography. It has become widely known for the high quality of its work and through the years has amassed a collection of approximately 100,000 negatives of medical interest. The present work of the laboratory is best illustrated by the figures for the first six months of 1945.

Type of Work	Jan.	Feb.	March	April	May	June	Total
Negatives	1038	923	844	838	981	1256	5880
Prints	5461	2382	3954	3614	5367	5717	26495

Type of Work	Jan.	Feb.	March	April	May	June	Total (Cont'd)
Enlargements	421	304	360	427	199	295	2006
Lantern slides	375	358	445	422	490	164	2254
Colored lantern slides	958	1174	1969	482	878	420	5881
Photostats	2726	3126	2872	2449	2695	2774	16642
Offset Plates	48	109	137	17	21	25	357
Offset Prints	120200	141150	71380	7428	8875	1400	350433

74. The other section, organized at the beginning of this war, is known as the Museum and Medical Arts Service. Its purpose is to secure illustrative records, photographs and drawings of wounds, injuries, and diseases peculiar to the countries in which our troops are stationed; also to train men, already expert in the lines of medical photography and art, to adapt their skills to the conditions of work in the field.

The work of the Medical Museum and Arts Service is concerned with the supervision of the work of detachments, and organization of photographic departments in general hospitals. Every theatre of operations has one or more detachments of medical photographers and artists which send a vast amount of material to their headquarters at the Institute. The Medical Museum and Arts Service organized clinical photographic departments in over 60 general hospitals. At present, each such department sends to the Army Institute of Pathology one print of each clinical photograph taken, and reports the diagnosis of each color photograph taken and the footage and subject of all motion pictures prepared. This wealth of material from all parts of the world is carefully classified and arranged for the use by the Army Medical Department as a record of the medical activities of this war and instruction and training of medical officers.

The number of negatives and moving picture film received from these two

sources is shown in the figures for the first six months of 1945.

Type	Jan.	Feb.	March	April	May	June	Total
Negatives	3499	5259	4814	6376	5194	5808	30950
Motion Picture Film Black & White(feet)	9050	6783	5890	3250	6255	12135	43363
Kodachrome (feet)	782	1237	1380	1343	1314	1599	7655

75. For some years to come, it is anticipated that American troops will be stationed in many different parts of the world. The collection of illustrative material by the detachments of the Museum and Medical Arts Service, and by the photographic departments of general hospitals will thus continue to be an important contribution.

The Committee recommends:

XXVIII. THAT THE CENTRALIZATION OF MEDICAL ILLUSTRATION IN THE ARMY AT THE ARMY INSTITUTE OF PATHOLOGY BE CONTINUED AND THAT PROPER AUTHORITY BE OBTAINED BY THE SURGEON GENERAL FOR THE STORAGE AND USE AT THE ARMY INSTITUTE OF PATHOLOGY OF MEDICAL ILLUSTRATIVE MATERIAL TAKEN BY OTHER BRANCHES OF THE SERVICE.

XXIX THAT THE PHOTOGRAPHIC LABORATORY AND THE MEDICAL MUSEUM AND ARTS SERVICE BE CONSOLIDATED AND DESIGNATED THE ARMY MEDICAL ILLUSTRATION SERVICE AS A DEPARTMENT OF THE ARMY INSTITUTE OF PATHOLOGY; AND THAT THE SURGEON GENERAL BY APPROPRIATE MEANS AUTHORIZE TRAVEL OF PERSONNEL OF THE ARMY MEDICAL ILLUSTRATION SERVICE TO ANY LOCATION IN ORDER TO OBTAIN ILLUSTRATIVE MATERIAL OF VALUE TO THE ARMY MEDICAL DEPARTMENT.

76. Frequently in the past four years requests for medical photographs have not come to the attention of the Army Medical Illustration Service in time to be available immediately for training purposes. Proper liaison could remedy this defect and the committee recommends:

XXX

THAT THE SURGEON GENERAL BY APPROPRIATE MEANS ESTABLISH DEFINITE LINES OF LIAISON BETWEEN THE ARMY MEDICAL ILLUSTRATION SERVICE AND THE DIVISIONS OF THE OFFICE OF THE SURGEON GENERAL.

77. It is difficult at present to determine the personnel requirements of the Army Medical Illustration Service. Certainly there should be a director, preferably a civilian to serve as chief of service under The Director of the Institute. Additional employees needed will depend on the size of the Army and the numbers of active general hospitals. However, for several years it will require an increased number of employees (clerks, typists, etc.) over the normal to file and code the immense amount of material accumulated during the war. It would be most unfortunate if these valuable illustrations were not filed and cross-indexed in such a way as to make them available. In so far as can be estimated the continuing needs for personnel include

1 Director

1 Technical assistant for motion pictures

1 Technical assistant for general photography

1 Technical assistant for clinical photography

1 Technical assistant for color photography

1 Offset press operator

2 Assistants for offset press

5 Photographers

6 Clerks or Assistants

1 Secretary

78. The photographs and lantern slides of the Army Medical Illustration Service will be of value to many different groups and the committee recommends:

XXXI. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS ESTABLISH A POLICY MAKING THE FILES OF THE ARMY MEDICAL ILLUSTRATION SERVICE AVAILABLE FOR LEGITIMATE USE BY ALL BRANCHES OF THE ARMY, OTHER SERVICES, OTHER GOVERNMENTAL AGENCIES, REPUTABLE CIVILIAN INSTITUTIONS, AND QUALIFIED CIVILIANS.

79. For some years the Service has made exhibits at various national and regional medical meetings. This reflects credit on the Army and spreads good-will, and should be continued. The Committee recommends:

XXXII. THAT THE SURGEON GENERAL BY APPROPRIATE MEANS AUTHORIZE THE ARMY MEDICAL ILLUSTRATION SERVICE TO PARTICIPATE IN NATIONAL AND REGIONAL SCIENTIFIC MEETINGS BY EXHIBITS AND OTHER METHODS.

80. Estimation of the space requirements of the Army Medical Illustration Service in a new building for the Institute can be determined with some accuracy. It is believed that about 17,000 sq. ft. will be needed and should include:

Supply Room	too small	150 sq. ft.	
Chemical mixing room	OK	200 sq. ft.	1 - 20x10
Toilet (?)	2 - ♂ - ♂	250 sq. ft.	
Storage of equipment and used exhibits		800 sq. ft.	2 - 20x20
Files (negatives, lantern slides, prints)		2000 sq. ft.	
Reproduction department and stock storage		2500 sq. ft.	
Art department	too small	750 sq. ft.	1,6 - 20x20
Exhibit preparation and sample room		900 sq. ft.	
Dark rooms		2800 sq. ft.	= 7 - 20x20
Color laboratory		1000 sq. ft.	

Visiting doctors rooms (viewing stills)	500 sq. ft.
Photostat room	1000 sq. ft.
Studio	300 sq. ft.
General Work Room	1000 sq. ft.
Photomicrograph Room	700 sq. ft.
Motion picture library and laboratory	850 sq. ft.
Rooms for individual viewing of transparencies and motion pictures	500 sq. ft.
Office space	800 sq. ft.
TOTAL	17,000 sq. ft.

↑ 20000 sq ft

N. ARMY MEDICAL MUSEUM

81. The Army Medical Museum is the parent organization of the Army Institute of Pathology and its several departments. In the course of time the Army Medical Museum has grown to be the largest museum of its kind in the world. It has famous collections of microscopes, from the earliest to the most modern models, of ophthalmoscopes, stethoscopes, and other diagnostic instruments, and comprehensive collections of medical coins, medals, and stamps. Its material also includes the famous Huntington collection of comparative anatomy. The number of items cannot be stated, for even before this war, lack of space made it necessary to store a large part of the collections. The exhibits on view illustrate wounds of war, from those caused by Indian tomahawks to those of the latest explosives, and also present specimens of all diseases that afflict man and the animals of use to man. Although Europe has had several notable medical museums open to laymen, the Army Medical Museum is the only one in the United States which admits the general public. That such a Museum fills a need is plain from the number of interested visitors ---- in a year as many as 200,000.

82. If a new Army Institute of Pathology is to fill its proper place in the training of medical officers and civilians in pathology, there must be a small working museum in the Laboratory of Pathology. Such a museum is entirely unsuitable as a museum for the laity. Both the long traditions

of the Army Medical Museum and the evident demand of the public for a medical museum for the laity force the conclusion that

XXXIII. THE SURGEON GENERAL BY APPROPRIATE MEANS ESTABLISH A PERMANENT POLICY FOR THE MAINTENANCE OF A MEDICAL MUSEUM FOR THE LAITY BY THE UNITED STATES ARMY IN SOME LOCATION IN WASHINGTON READILY ACCESSIBLE TO VISITORS

83. The largest source of specimens for a museum for the laity in Washington is the Army Institute of Pathology. Therefore, it is the opinion of the Committee that the museum for the laity, even if physically separated from the Institute, should be administratively under The Director of the Institute.

84. An experienced civilian curator, familiar with modern museum techniques as utilized in industrial and art museums should be appointed. The Committee recommends:

XXXIV. THAT THE SURGEON GENERAL APPOINT A QUALIFIED CIVILIAN CURATOR OF THE ARMY MEDICAL MUSEUM ON A PERMANENT BASIS, AND BY APPROPRIATE MEANS PROVIDE A STAFF AND BUDGET FOR EXPENSE ADEQUATE FOR MAINTENANCE OF A MUSEUM FOR THE LAITY.

Cost $100 prog fort per year

85. The staff needed for the museum for the laity includes:

1 curator

2 assistant curators

1 secretary

3 preparators

1 to 10

86. The Committee believes that the collections in the present Army Medical Museum, especially the collection on the history of medicine, and the collection of trophies of the Army Medical Department should be trans-

ferred to the new museum intact. This will insure continued care and expansion of these valuable collections.

87. In the development of a new museum for the laity, modern techniques should be utilized to the fullest. Some of the more important of these are: Employment of illustrative material other than specimens, such as photographs, diagrams, and radiographs; emphasis on preventive medicine; utilization of modern illuminating devices; use of dioramas, models, and other three dimensional exhibits; periodic replacement of exhibits; preparation of new exhibits in relation to topics of current interest; moving or illuminated models which can be operated by the visitor; gallery talks and gallery walks; and illustrated lectures and showing of movies on medical subjects for the laity.

88. It follows that a new building to house the museum for the laity must have several medium-sized to large display rooms, a lecture hall, and preparation rooms including machine shops. The museum for the laity may well be a wing on the new Institute or a separate building nearby. It is estimated that 35,000 sq. ft. of floor space will be required on not more than two floors as follows:

Display halls	30,000 sq. ft.	36,000
Administrative offices	500 sq. ft.	1500
Preparation rooms and shops, + storage	2,000 sq. ft.	20,000 - 30,000
Lecture hall	10,000 sq. ft.	

The item for a lecture hall is large since this may also serve as the auditorium for 500 suggested by the Surgeon General. The entrance to this museum should be separate from that of the Institute and ample parking space for visitors should be provided.

O. RELATION OF ARMY INSTITUTE OF PATHOLOGY TO ARMY MEDICAL LIBRARY

89. For efficient work in a new Army Institute of Pathology, there must be a working library of about 40,000 to 50,000 volumes in the Institute. This

Built in areas in place of lecture rooms & auditorium

On Exhibit

Charge

Mark

120

36000

300 | 300

600

600

6126

1800

7926

6200

10,200

100

800

2000

21,500 feet

15500 feet

2000

17600

1000

18,600 ft

30

70

100

50

40

90

library should contain systems, textbooks and monographs of pathology, and complete sets of the more important medical journals as they relate to pathology.

The committee therefore recommends:

XXXV. THAT PLANS FOR THE NEW ARMY INSTITUTE OF PATHOLOGY INCLUDE SPACE FOR A WORKING LIBRARY AND BUDGETARY ALLOWANCE FOR PURCHASE OF BOOKS AND BACK SETS OF JOURNALS.

90. The inclusion of the Army Institute of Pathology and Army Medical Library in the same building as they have been since 1887 would increase the size beyond that of efficient operation. Hence if the Library is placed in proximity to the Institute, it must be in a separate building or in a connected building.

91. Whether the Army Medical Library should be placed on Capitol Hill or in a new Army Medical Research Center of which the Army Institute of Pathology is a part is essentially a question of whether a medical library should be placed in proximity to libraries or in proximity to medical readers.

The development of medical facilities in the Northwest part of the District and adjacent Maryland has been rapid in the last decade. Within a radius of two to three miles there are the Army Medical School, the Walter Reed Hospital, the Naval Medical Center, the National Institute of Health, and the National Cancer Institute. It is estimated that within a few years there will be a minimum of from 1200 to 1500 physicians and medical scientists in this small area. It would thus appear that the trend of medical development of the governmental services is to the Northwest part of the District. Location of the Army Medical Library there would place it in the center of a large reading public composed of the medical personnel of the Services.

The Army Medical Library should also serve the medical profession of Washington. The committee is informed that the center of the physician population of Washington both for offices and homes is well out into the Northwest section of town.

Utilization of the Library for interlibrary loans and by the small number of visitors from other cities who come for research would be equally possible in a location near the other medical installations. The Committee has ascertained that on the average fewer than two readers from out of town per day visit the Library.

The Committee therefore suggests

XXXVI. THAT THE MOST EFFICIENT USE OF THE ARMY MEDICAL LIBRARY BY ALL MEDICAL GROUPS INCLUDING THE ARMY INSTITUTE OF PATHOLOGY WOULD BE OBTAINED IF THE NEW ARMY MEDICAL LIBRARY WERE LOCATED IN THE NORTHWEST PART OF WASHINGTON;

and the Committee therefore recommends

XXXVII. THAT THE ARMY MEDICAL LIBRARY BE LOCATED IN THE NORTHWEST PART OF WASHINGTON AND NOT ON CAPITOL HILL.

P. SUMMARY OF STAFF FOR INSTITUTE

92. In addition to The Director of the Institute and his administrative staff, the Directors of each of the four departments and their staffs, and the professional and nonprofessional staffs of the departments, mentioned or itemized in other sections of this report, the upkeep of the building will require a superintendent of building and grounds, carpenters, machinists and electricians, watchmen, and janitors.

Q. SUMMARY OF PLANS FOR NEW BUILDING

93. The estimates of the floor space required by each department are:

Department of Pathology	88,400 sq. ft.
Army Medical Illustration Service	17,000 sq. ft.
Experimental Research	15,000 sq. ft.
American Registry of Pathology	6,000 sq. ft.

The total is, thus, 126,400 sq. ft. of floor space.

94. It is believed that an institute of this overall size might well be divided into a building with seven stories, including a sub-basement, a basement, and five floors. The square feet of working space on each floor would then be approximately 18,000 sq. ft. This size of a building is not too large for efficient use in going from one place to another on one floor, and in going from one floor to another. Inasmuch as the requirements of the future can not be fully anticipated, the committee recommends that the building be constructed so that vertical or horizontal expansion will be possible.

95. The allocation of the various activities to the different floors may well be as follows:

Sub-basement - storage rooms

Basement - Department of Pathology

First floor - Department of Pathology, particularly the conference rooms and the museum for the institute.

Second floor - Department of Pathology, particularly offices for the staff.

Third floor - Department of Pathology, particularly the hospital beds, and the American Registry of Pathology.

Fourth floor - Army Medical Illustration Service

Fifth floor - Department of Experimental Pathology and animal quarters.

96. In addition, the museum for the laity and a large auditorium will require a separate building or wing of approximately 42.500 sq. ft. of floor space arranged into a basement and two floors. It should be emphasized that these estimates do not include hallways, stair wells, elevator shafts, and other service space for a building of the character proposed.

Summary of Recommendations

On the basis of the survey of the present facilities and functions of the Army Institute of Pathology and the anticipated utilization of the Institute in the future by the Army and by the Nation, the committee recommends that the Surgeon General of the United States Army by appropriate means:

I. Change the name of the Army Medical Museum to Army Institute of Pathology, and restate and strengthen the policy designating the Army Institute of Pathology as the Central Laboratory of Pathology for the United States Army.

II. Enter into negotiations with the Veterans Administration looking toward designation of the Army Institute of Pathology as the Central Laboratory of Pathology for the Veterans Administration.

III. Continue the Army Institute of Pathology as an activity of the Office of the Surgeon General.

IV. Restate the policy charging the Army Institute of Pathology with responsibility for: a consultation service for the diagnosis of pathologic tissue for the entire Army; collection of medical illustrative material and supervision of medical arts and clinical photography in the Army; service as headquarters for the American Registry of Pathology; conduct of investigation and research on diseases of medicomilitary importance; instruction in pathologic anatomy to officers of the medical department; and maintenance of museums for the instruction of medical, dental, and veterinary officers and the education of the public.

V. Establish departments within the Army Institute of Pathology: department of Pathology, Army Medical Illustration Service, American Registry of Pathology, Army Medical Museum, and such other departments as may prove to be desirable.

VI. Proceed at once to secure authorization and funds for the construction of a building adequate in size and arrangement for the expanding activities of a modern Army Institute of Pathology.

VII. Continue the policy of assignment of an officer from the Regular Army who is experienced in pathology as The Director of the Army Institute of Pathology.

VIII. Establish four positions in the Army Institute of Pathology, designated respectively: Scientific Director of the department of Pathology; Scientific Director of the American Registry of Pathology; Chief of the Army Medical Illustration Service; and Curator of the Army Medical Museum.

IX. Fill these four positions on a permanent basis by persons of experience and ability, either from civilian life or from the commissioned ranks of the Army depending on availability.

X. Define the authority of The Director and charge him with supervision and correlation of all activities of the Institute.

XI. Establish a Scientific Advisory Board of the Army Institute of Pathology, and authorize that the members be selected, on recommendation of The Director, from those appointed

as resident consultants and others who may be qualified, including personnel from the other services.

XII. Reaffirm and if necessary strengthen the Army regulations requiring that the pertinent tissues from all autopsies and from all the more important surgical operations be sent to the Institute for diagnosis, for consultation, or for review and final opinion.

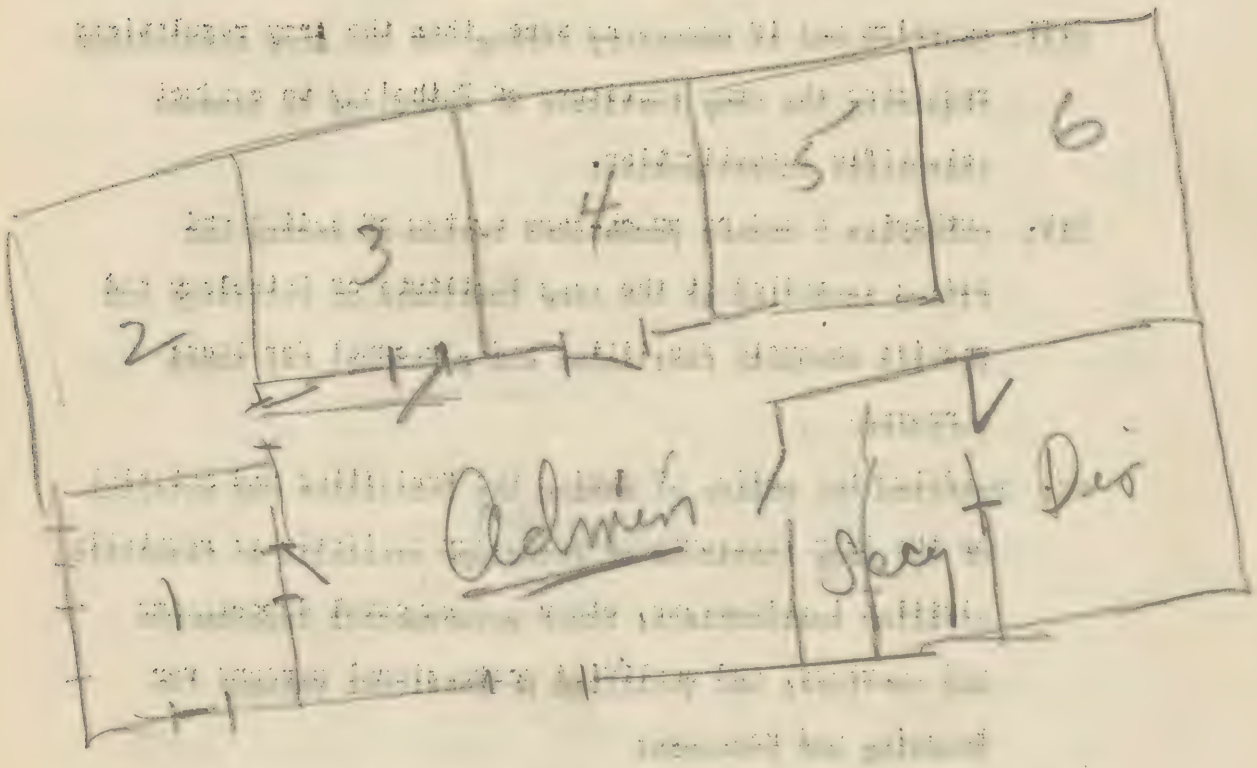
XIII. Reaffirm and if necessary strengthen the Army regulations requiring the Army Institute of Pathology to conduct scientific investigation.

XIV. Authorize a modern punch-card system of coding and filing installed at the Army Institute of Pathology and provide adequate facilities and personnel for these purposes.

XV. Reaffirm the policy of making the facilities and material of the Army Institute of Pathology available to reputable civilian institutions, other governmental departments and services, and qualified professional persons for teaching and research.

XVI. Arrange for the assignment to the Army Institute of Pathology of not less than nine officers including medical, dental, and veterinary officers from the Regular Army for periods of four years, and subsequent assignment of these officers to positions in which they will use this professional training.

XVII. Arrange for the assignment of reserve officers to active duty at the Army Institute of Pathology for research, teaching, or training.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XVIII. Authorize the acceptance of fellows for graduate training at the Army Institute of Pathology.

XIX. Continue as a permanent policy the appointment of resident consultants.

XX. Authorize the Army Institute of Pathology to initiate, conduct, or collaborate in appropriate experimental investigations on diseases which may assume medicomilitary importance.

XXI. Establish a table of organization for the Laboratory of Pathology in the Army Institute of Pathology providing for a permanent staff of twelve competent civilian pathologists or medical officers, exclusive of administrative officers and officers or fellows assigned for training or for special projects.

XXII. Reaffirm and if necessary strengthen the policy that the American Registry of Pathology shall be housed in and shall be an integral part of the Army Institute of Pathology.

XXIII. Encourage utilization of the facilities of the American Registry of Pathology by officers of the medical department and other government services and civilians for graduate study in special fields of pathology.

XXIV. Appoint a pathologist of established reputation as Scientific Director of the American Registry of Pathology on recommendation of the committee on the American Registry of Pathology of the National

Research Council.

XXV. Establish the tenure of office and provision for a pension of the Scientific Director of the American Registry of Pathology by agreement with the committee on the American Registry of Pathology of the National Research Council.

XXVI. Request the National Academy of Sciences - National Research Council to act as fiscal agent for the custody and dispersal of funds for the American Registry of Pathology.

XXVII. Effect the administrative changes in the American Registry of Pathology as soon as possible, and not await the erection of a new building.

XXVIII. Continue the centralization of medical illustration in the Army at the Army Institute of Pathology and secure proper authority for the storage and use at the Army Institute of Pathology of medical illustrative material taken by other branches of the service.

XXIX. Consolidate the photographic laboratory and the medical museum and arts service and designate the Army Medical Illustration Service as a department of the Army Institute of Pathology; and authorize travel of personnel of the Army Medical Illustration Service to any location in order to obtain illustrative material of value to the Army Medical Department.

XXX. Establish definite lines of liaison between the Army Medical Illustration Service and the divisions of the

Office of the Surgeon General.

XXXI. Establish a policy making the files of the Army Medical Illustration Service available for legitimate use by all branches of the Army, other services, other governmental agencies, reputable civilian institutions, and qualified civilians.

XXXII. Authorize the Army Medical Illustration Service to participate in national and regional scientific meetings by exhibits and other methods.

XXXIII. Establish a permanent policy for the maintenance of a medical museum for the laity by the United States Army in some location in Washington readily accessible to visitors.

XXXIV. Appoint a qualified civilian curator of the Army Medical Museum on a permanent basis, and provide a staff and budget for expense adequate for maintenance of a museum for the laity.

XXXV. Include in plans for the new Army Institute of Pathology space for a working library and budgetary allowance for purchase of books and back sets of journals.

XXXVI. Accept that the most efficient use of the Army Medical Library by all medical groups including the Army Institute of Pathology would be obtained if the new Army Medical Library were located in the northwest part of Washington.

XXXVII. Direct that the Army Medical Library be located in the northwest part of Washington and not on Capitol Hill.

35 – 45000 additional square feet.

Auditorium university of Chicago –
Built in bookcases U of Illinois –

Col Darts order –

1. Assign Museum –
2. TDY. 2 wks. Univ / Col – return to proper station
   Dr. Carl Meyer
3. 30 days leave –
4. 15 Day P C A
5. Return to Washington
6. Travel – to inspect Eastern Institutes.
   (a) Western Reserve Institute
   (b) Bell Telephone Lab –
   (c) Marine Biological Station
   (d) Mayo Clinic
   (e) Rockefeller Hospital & Institute